



PhD Position available at the Zoological Institute & Museum University of Greifswald, Germany

Mechanics of natural spider silk composites

A **Doctoral Researcher (f/m/d) (Wiss. Mitarbeiter*in) (65% TV-L 13)** position is available in the EU funded project *Melding behavioural ecology and biomaterials research to track the evolution of mechanical super-performance of spider silk composites (SuPerSilk)* led by Dr. Jonas Wolff. The position is **fixed to a term of 3 years**, starting 15 March 2023 or later.

About us: The newly founded Evolutionary Biomechanics lab is headed by Dr. Jonas Wolff. We are a mix of mid- and early career biologists and physicists from different countries. Together we explore the diversity of shapes and functions of living systems. A core theme is to understand how materials and structures evolve and work that are not grown, but arise from animal construction behaviour and secretion processes.

About the project: Using the functional diversity of spider silks as a model system the EU-funded project *SuPerSilk* aims to explore how biological materials with outstanding properties evolutionary originate. A special focus is to understand how changes in spinning behaviour, spinning apparatus structure and the functional differentiation of silk glands have affected the evolution of novelties in silk material properties. With this we not only want to lay the foundation for a new research direction, but also generate ideas for the development of new tailored fibre based materials with unprecedented mechanical properties.

Our offer: The position offered provides you with an exciting and diverse, fully funded opportunity to pursue a PhD and to build an interesting profile and strong track-record. You will investigate the properties and functions of spider silk composite materials, using biomechanical, microscopical and modelling approaches. Being embedded into an excellence project you will benefit from the close collaboration within a creative and vibrant team of researchers from different disciplines, working on other aspects in the same system in parallel. Your well-being and personal development is important to us and thus we strive to create a friendly and fun working environment, with accessible supervisors, flexible working hours, annual leave, and diverse training and mentoring options.

Your tasks:

Research within the EU-funded project *SuPerSilk*:

- Comparative mechanical and structural characterization of different spider silk fibres and threads (tensile testing, light and electron microscopy, Raman spectroscopy)
- Experimental studies in combination with the theoretical study of fibre bundle mechanics
- Statistical data analyses
- Management of the biomechanical test equipment
- Writing of scientific articles, presentation at international congresses, science communication

Your profile:

- You have a higher degree in biology (with training in biomechanics), physics, biomimetic engineering, material science or a related discipline (Master of Science or equivalent)
- Good knowledge of biomechanics, or the mechanics of composite materials with a basic understanding of biological systems
- You are trained in microscopy methods
- You have very good written and oral English communication skills

- You are able to work independently, self-reflected, careful and responsible (esp. when working with sensitive equipment), and to generate own ideas
- You are curious and open to learn new techniques and develop new experimental approaches
- Solid programming skills (e.g. Python, R)

In addition, it is advantageous if you have:

- Experience in mechanical characterization of materials (esp. tensile testing or nanoindentation)
- Knowledge of the composition and structure of biological materials (esp. silk)
- good knowledge of statistical approaches
- skills and enjoyment of working with technical devices (e.g. 3d-printing, electronics, IT)
- some first experiences in scientific publishing

About Greifswald: Founded in 1456, the University of Greifswald is one of the oldest universities in Europe, with a long tradition in research and teaching excellence. Greifswald's location in the coastal landscape of islands and lagoons of the Baltic Sea renders it very attractive for water sports, cycling and hiking. Surrounded by nature, with a historic city centre, a richness in cultural events, excellent cycling infrastructure and direct train connections to the metropolises of Berlin and Hamburg, Greifswald offers a great quality of life.

The position is open to all persons, irrespective of gender. We aim to increase the proportion of women in areas in which they are underrepresented. Applications from women are particularly welcome and will be treated with priority if they have the same qualifications and as long as there are no clear reasons, which make a fellow applicant more suitable. Severely disabled applicants with the same qualifications will be considered with preference.

Please send your application with all usual documents (cover letter, CV, scans of degree certificates, contact details of two referees, scientific publications if available) **via email (single pdf-file)** with reference to the job advertisement number **22/Wi23** by **31 December 2022** to:

University of Greifswald
Zoological Institute and Museum
Dr. Jonas Wolff
Loitzer Str. 26
17489 Greifswald

E-Mail: j.wolff@uni-greifswald.de

Please contact me (j.wolff@uni-greifswald.de) if you have any questions regarding the position or project.

For more information on me (the PI) and my activities:

ResearchGate: <https://www.researchgate.net/profile/Jonas-Wolff-2>

Twitter: [@evoimec](#) | [@jonas_o_wolff](#)

Link to the official job announcement (in German): <https://www.uni-greifswald.de/universitaet/information/stellenausschreibungen/promotionsstellen/stellenausschreibung/n/wissenschaftlicher-mitarbeiterin-zoologisches-institut-und-museum-22-wi23-139119/>

Legal notes:

According to § 68(3) PersVG M-V, the Staff Council will only be involved in staff matters of the academic or artistic staff on request.

Please only submit copies of your application documents as they cannot be returned.

Unfortunately, application costs (e.g. travel expenses for interviews) will not be reimbursed by the State of Mecklenburg-Vorpommern.

Please note that by submitting your application, you provide your consent pursuant to data protection law for our processing of your application data. Further information about the legal bases and the use of your data can be found here:

<https://www.unigreifswald.de/universitaet/information/stellenausschreibungen/oeffentliche-stellenausschreibungen/hinweise-zum-datenschutz/hinweise-zum-datenschutz/>